Valerio (or Valeri), Luca | Encyclopedia.com

(*b*. Naples, Italy, 1552; *d* Rome, Italy, 17 January 1618)

mathematics.

Valerio was the son of Giovanni Valeri, of Ferrara, and Giovanna Rodomano, of Greek extraction. he was brought up on Corfu and was educated in Rome at the Collegio Romano, where Clavius was one of his teachers. He studied philosophy and theology, although his main interest was mathematics. Most of his life was spent at Rome as a teacher, both private and public. Valerio taught rhetoric and Greek at the Collegio Greco and, from 1600 until his death, mathematics at the Sapienza in Rome. Among his private pupils were the future Pope Clement VIII and the poet Margherita Sarrocchi, with whom he apparently had a love affair. For a time he was also corrector of Greek in the Vatican Library. On 7 June 1612 he was elected a member of the Accademia dei Lincei and was active in its affairs until 1616. Apparently Galileo and Valerio had met about 1590 in Pisa; and around 1610 they were conducting a brisk and friendly correspondence, replete with expressions of mutual admiration. On 24 March 1616, however, Valerio was expelled from the Lincei for reasons that are now obscure. We do know that he objected to its wholehearted support for Galileo's Copernicanism in the controversy of 1616, but all the facts of the case are not available. Valerio spent the last two years of his life in obscurity and disgrace. It is a supreme irony that a few years later Galileo came to a similar end, but for the opposite reason. Galileo, however, rose above their common fate, for in his *Discorsi* of 1938 he called Valerio "greatest geometer, new Archimedes of our time."

Valerio's *De centro gravitatis* consists of the application of Archimedean methods to the determination of the volumes and centers of gravity of the various solids of rotation and their segments. One of the most interesting lemmas of the book says in effect that if lim $x=a$ and lim $y= b$, and if = c = constant, then , which is basically the same as lemma **IV** of book **I** of Newton's *Principia* and as Cavalieri's principle. In *Quadratura parabolae* Valerio used the known center of gravity of a hemisphere to find that of a segment of a parabola. He then used this result to determine the area of the segment. Valerio's method was that of Archimedes, although he introduced general lemmas to dispense with the cumber some *reductio ad absurdum* process. Some of his theorems may be said to make implicit use of a limit approach, but outwardly he was strictly finitist.

Valerio was strongly influenced by Commandino and apparently, in his method for finding centers of gravity, also by Maurolico. Among the mathematicians who studied him and spoke highly of him were Cavalieri, Torricelli, and J.C. de la Faille. He also had a direct influence on Guldin, Gregorius Saint Vincent, and Tacquet.

BIBLIOGRAPHY

I. Original Works. Valerio published three books: *Subtilium indagationum seu quadratura circuli et aliorum curvilineorum* (Rome, 1582), of which there is an apparently unique copy in the Alexandrine Library in Rome; *De centro gravitatis solidorum* (Rome, 1604: Bologna, 1661 [with *Quadratura*]); and *Quadratura parabolae* (Rome, 1606; Bologna, 1661). The *De piramidis et conis* mentioned in some accounts is probably a bibliographical ghost. Valerio's letters to Galileo, Cesi, and Baldi are printed in the Edizione Nazionale of Galileo's works.

II. Secondary Literature. The standard source of information on Valerio is G. Gabrieli, "Luca Valerio Linceo e un episodio memorabile della vecchia Accademia," in *Atti dell'Accademia nazionale dei Lincei. Rendiconti*, Cl. di scienze morali, storiche e filologiche, 6th ser., **9** (1933), 691–728, which has a good bibliography. The first modern historian to draw attention to Valerio as a mathematician was C. R. Wallner. "Über die Entstehung des Grenzbegriffes," in *Bibliotheca mathematica*, 3rd ser., **4** (1903), 246–259. Later accounts include H. Bosmans, "Les démonstrations par l'analyse infinitésimale," in *Annales de la Société scientifique de Bruxelles*, **37** (1913), 211–228; and A. Tosi, "*De centro gravitatis solidorum* di Luca Valerio," in *Periodico di matematiche*, **35** (1957), 189–201. See also H. Wieleitner, "Das Fortleben der Archimedischen Infinitesimalmethoden bis zum Beginn des 17. Jahrh., insbesondere über Schwerpunktbestimmungen," in *Quellen und Studien zur Geschichte der Mathematik, Astronomie und Physik*, Abt. B. Studien, **1** (1931), 201–220.

Per StrØmholm